



**USACHPPM**  
Readiness thru Health

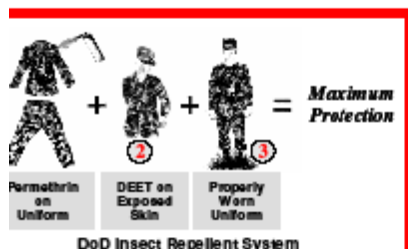
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## Just the Facts...

## DoD Insect Repellent System

"Did you know that whenever nations send troops into battle, more troops are taken out of action by disease and non-battle injuries than are injured in combat? Many of the disease injuries result from germs passed by the bites of insects and their relatives. Don't let yourself be pestered by insects, or worse, become a casualty due to a bug-borne disease."

*Armed Forces Pest Management Board*



### Q. How can I protect myself from being bitten by insects?

A. Help prevent the disease, pain, and annoyance caused by the bites of insects (such as mosquitoes and sand flies) and other arthropods (such as ticks and chiggers) by using personal protective measures (PPMs).

• For optimum protection, military personnel should utilize the **DOD INSECT REPELLENT SYSTEM**:

① Treat your uniform (ACUs, BDUs, DCUs) with the standard military clothing repellent (permethrin). Use the IDA kit (NSN 6840-01-345-0237). This product is a permethrin impregnation kit that contains 40-percent permethrin. One kit treats one uniform, and the treatment lasts through approximately 50 washes (generally considered the combat life of uniform). If the IDA kit is not available, use the Aerosol Spray Can, NSN 6840-01-278-1336, 0.5-percent permethrin, one application of approximately 34-can lasts through 5-6 washes. Treat your uniform **PRIOR** to deploying. Follow all label directions. Currently, uniforms can also be factory-treated via contract. Contact the Armed Forces Pest Management Board (AFPMB) for details.



② Apply a thin coat of the standard military skin repellent (DEET) to all areas of exposed skin. Use NSN 6840-01-284-3982, 33% controlled-release DEET lotion, one application protects for up to 12 hours depending on the climate. Follow label directions.

③ Wear your uniform properly; it acts as a physical barrier against insects. Wear the sleeves rolled down. Close all openings in your clothing that might provide access to insects: tuck pants into your boots, and undershirt into your pants. Wear your uniform loosely, because some insects, such as mosquitoes, can bite through fabric that is pulled tight against the skin.

**Use DEET and permethrin products are the most effective repellents available and they have proven safety records.**

***Q. What else should I know about DEET and permethrin repellents?***

**A.** Use DEET only on exposed skin – do not apply underneath clothing. Only a thin, even coating of DEET is necessary – a larger quantity does *not* work better. A DEET concentration greater than 50% is *no* more effective. The 33% controlled-release DEET lotion (standard military skin repellent) works the best because its unique polymer formulation allows the DEET to work for a longer period of time than other products. Avoid the eyes and lips, and do not apply over cuts or sunburned, or otherwise injured skin.

Use permethrin only on clothing, netting, tents, ground cloths or other gear. DO NOT treat underwear or the inside of the cap. Permethrin has no odor once the item of clothing is treated. DO NOT dry clean permethrin-treated garments as solvents will remove the permethrin. Treated garments can, however, be personally or professionally laundered, starched, and pressed as usual. Getting the treated uniform wet from rain or by fording streams, etc. will not affect the treatment.

***Q. Are there any products I should avoid?***

**A.** DO NOT wear animal flea and tick collars – they are harmful to human health and have unproven effectiveness. Non-DEET repellents (such as those containing citronella), or other products not registered as repellents by the Environmental Protection Agency (EPA), are not as effective as DEET and may not be any safer. Avoid practices such as eating match heads or yeast tablets because they have not been shown to be effective.

***Q. Can I use repellents if I'm pregnant?***

**A.** Yes, especially if you will be exposed to disease-carrying insects. Although it is wise to exercise a cautious approach when pregnant (e.g. try to avoid situations where disease-carrying insects may be present, use repellent sparingly, and wash off and discontinue use when insect exposure has ceased), there is no convincing evidence that DEET or permethrin, when used in accordance with label directions, will have an adverse effect on the mother or fetus. Conversely, insect-borne diseases such as malaria can be very harmful to both mother and fetus. Therefore, the CDC recommends that pregnant women, who are traveling to any area where they may be exposed to insect-borne diseases, use the same protective measures as non-pregnant travelers. The CDC indicates that these measures include covering up with clothing, applying DEET (up to 50%) to exposed skin, using a bed net, and applying permethrin to both clothing and bed nets.

***Q. Who can I contact if I have questions about the DoD Insect Repellent System or other PPMs?***

**A.** Contact the U.S. Army Center for Health Promotion and Preventive Medicine: DSN 584-3613, CM (410) 436-3613, <http://chppmwww.apgea.army.mil>; or the Armed Forces Pest Management Board: DSN 295-7476, CM (301) 295-3613, <http://www.afpmb.org>.

**Q. *How serious is vivax malaria?***

**A.** Malaria caused by *Plasmodium vivax* is rarely fatal (in contrast to *P. falciparum* which is extremely lethal and responsible for the majority of malaria deaths worldwide). However, it can still cause significant illness. In addition, some strains of *P. vivax* have the ability to incubate in the liver for 6 – 10 months or longer, thereby delaying the appearance of initial symptoms until long after the actual exposure and infection occurred. In these cases, malaria may initially be overlooked as a diagnosis, resulting in delayed treatment. In other instances, the parasites can remain dormant in the liver and reactivate (“relapse”) months to years later. In addition, *P. vivax* is becoming increasingly resistant to antimalarial drugs in some areas.

**Q. *Can vivax malaria be transmitted from person-to-person?***

**A.** No. Malaria (including *vivax* malaria) cannot be transmitted from person-to-person like a cold or the flu. You cannot get malaria through casual contact with an infected person (e.g. touching or kissing a person with the disease). The primary means of contracting malaria is via mosquito bite. Other, rare means of infection include blood transfusion, organ transplant, use of needles or syringes contaminated with blood, or very rarely, congenital transmission (infected mother passing the parasite to her fetus during pregnancy).

**Q. *What is the basic transmission cycle?***

**A.** *Plasmodium vivax* parasites are carried by an infected human in his/her bloodstream. Malaria is spread when a mosquito ingests blood from an infected person. The parasite develops into an infective stage within the mosquito and later is injected into another person when that infected mosquito feeds again.

**Q. *What are the symptoms of vivax malaria?***

**A.** After an incubation period of 12-18 days, the symptoms of *vivax* malaria begin. They are similar to those of other types of malaria and include recurring (cyclical) bouts of fever and shaking chills, sweats, headache, weakness, and nausea. Enlargement of the spleen and anemia may also occur. *Vivax* malaria is rarely fatal. Some strains of *P. vivax* have dormant liver stage parasites (“hypnozoites”) which can reactivate (“relapse”) and cause repeated bouts of malaria several months or years after the infecting mosquito bite. In some cases, initial symptoms may not even appear for 6-10 months. Anyone with a fever should seek prompt medical care (being sure to notify the attending medical personnel that he/she was potentially exposed to malaria while in Korea)

**Q. *What is the treatment for vivax malaria?***

**A.** *Vivax* malaria has classically been treated with chloroquine or primaquine. Primaquine acts against the liver stage parasites, decreasing the risk of relapse. In

## Annex H (Malaria Insect Repellent System)

different geographic locations, the parasites are becoming resistant to these drugs, so alternatives drugs and combinations are being used and explored.

### ***Q. Is a vaccine against vivax malaria available?***

**A.** No vaccine is available for any type of human malaria. Therefore, it is critical for any person traveling to areas where malaria occurs to consult with their physician about the current recommendations/requirements for preventive medications (“chemoprophylaxis”) against the parasites in that location.

### ***Q. What can I do to reduce my risk of becoming infected with vivax malaria?***

**A.** You can help prevent all types of malaria, and other mosquito-borne diseases, by protecting yourself from mosquito bites. Stay inside well-screened areas at dawn, dusk, and nighttime. This is when *Anopheles* mosquitoes are most active. Wear long-sleeved shirt, long pants, and socks whenever you are outdoors. Wear loose-fitting clothing to prevent mosquito bites through thin fabric. Use both skin and clothing repellents that have been approved by the Environmental Protection Agency (EPA). They are safe and effective.

- For your skin, use a product that contains 20-50% **DEET** (N, N-diethyl-meta-toluamide). **DEET** in higher concentrations is no more effective.
- Use **DEET** sparingly on children, and don't apply to their hands, which they often place in their eyes and mouths.
- Apply **DEET** lightly and evenly to exposed skin; do not use underneath clothing. Avoid contact with eyes, lips, and broken or irritated skin.
- To apply to your face, first dispense a small amount of **DEET** onto your hands and then carefully spread a thin layer.
- Wash **DEET** off when your exposure to ticks, mosquitoes, and other arthropods ceases.
- For your clothing, use a product that contains **permethrin**. **Permethrin** will prevent mosquitoes from being able to bite through the fabric. **Permethrin** is available commercially as 0.5% spray formulations. Clothing that is factory-impregnated with permethrin may also be purchased commercially.
- Permethrin will withstand numerous launderings.
- **Permethrin** should only be used on clothing, never on skin.

## Annex H (Malaria Insect Repellent System)

- When using any insect repellent, always FOLLOW LABEL DIRECTIONS. Do not inhale aerosol formulations.

For optimum protection, soldiers should utilize the **DOD INSECT REPELLENT SYSTEM**. In addition to proper wear of the military combat uniform (e.g. ACUs, BDUs) (pants tucked into boots, sleeves down, undershirt tucked into pants), this system includes the concurrent use of both skin and clothing repellents:

- Standard military skin repellent: 33% **DEET** lotion, long-acting formulation, one application lasts up to 12 hours, **NSN 6840-01-284-3982**.
- Standard military clothing repellents: either aerosol spray, 0.5% **permethrin**, one application lasts through 5-6 washes, **NSN 6840-01-278-1336**; or IDA (impregnation kit), 40% **permethrin**, one application lasts the life of the uniform (approx. 50 washes), **NSN 6840-01-345-0237**. Factory permethrin-treated ACUs are also available via contract [Contact the Armed Forces Pest Management Board (AFPMB) for details, DSN 295-7476; CM (301) 295-7476].

**Take malaria chemoprophylaxis pills as directed by the medical authority. This is CRITICAL.**

Eliminate mosquito-breeding sites by cleaning birdbaths routinely, and emptying water from old tires and other outdoor containers or debris. Make sure that door and window screens do not have holes. Vitamin B, ultrasonic devices, and “bug zappers” are NOT effective in preventing mosquito bites.